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**The Economics of War Planning:
An Addition to The Clausewitzian Trinity**

**A Monograph
by
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Infantry**

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ABSTRACT

The attached monograph seeks to analyze in general terms the economic dimension in war planning. It focuses on the causes and implications of the often inescapable incompatibility between political/economic objectives and military aims. Much of what the monograph argues has only recently been discerned from Operations Desert Shield and Desert Storm. It was a modern war of the kind whose effects we anticipated in AirLand Battle, but resulted in compressing the doctrine into ways never before visualized. One preliminary use of this monograph is to help CTNCs and senior staff planners gain insight about economics as a vital element in military strategy and campaign plan formulation.

Principally, the monograph seeks to analyze the economic domain through Clausewitz's framework of war. The author examines Clausewitz's trinity and suggests a modified version to his theory. Although the spectrum of the economic domain encompasses political, psychological, and military elements, the paper emphasizes the latter. This can be seen in the utility of finding economic features which may lead a planner to economic decisive points. The economic dimension is discussed to some degree, but only as a vehicle for continuity or for demonstrating the economic impact on military activities. The result of this research led the author to conclude that one can not limit himself to the destruction of the enemy's forces as the main effort without considering other possible centers of gravity such as their economic capacity to wage war.

Jean de Bloch once wrote that "military writers look upon future war only from the point of view of attaining certain objects by destroying the armies of the enemy." Switch his word *writers* for *planners* and you sense the issue before us. Bloch probably had Karl von Clausewitz or Henri de Jomini in mind when he wrote these words. It is time modern practitioners expand their thinking about the art of war to include economics.

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Abbreviations

The following is a list of selected acronyms or abbreviations necessary to avoid the long and tedious repetition of full titles, terms, or designations of organizations or individuals. The main ones used are:

ADM = Admiral
AFSC = Armed Forces Staff College
AY = Academic Year
CINC = commander in chief
CJCS = Chairman of the Joint Chiefs of Staff
COCOM = Combatant Command
CSI = Combat Studies Institute
FORSCOM = Forces Command
GEN = General
JCS = Joint Chiefs of Staff
JSCP = Joint Strategic Capabilities Plan
MPS = Maritime pre-positioning ships
NATO = North Atlantic Treaty Organization
NCA = National Command Authority
NSC = National Security Council
OPLAN = Operation Plan
POMCUS = Pre-positioning of materiel
UCP = Unified Command Plan

The Dawn of 21st Century Warfare

How well will Karl von Clausewitz measure up to 21st century warfare? Granted his monumental work, On War, is of keen interest to military historians and modern-day professionals rationalizing every aspect of the art. No one doubts its enlightening qualities about the essence of war and its conduct. Its literary reach continues to expand the minds of the world's finest military practitioners. To quote one authority on Clausewitz, Professor Michael Howard, the Prussian General was "the greatest military thinker of all time."¹ With nary an argument, On War is an extraordinary source for studying the essence of war, the play of strategy, and its theory. Certainly it is timeless, but has its mastery of the art of war been diminished for the modern operational artist confronting twenty-first century warfare?

In this light, one may argue that the book's reputation has overshadowed its true intrinsic value as the definitive work on war. Perhaps it is now time to put On War high on a bookshelf and let it assume its author's original intent.² Maybe Clausewitz is the closest of any military thinker to understanding the theory of war. That does not mean however, that his word is the last on the subject. The truth is, that work has yet to be written.

For nearly a decade, the U.S. Army has been undergoing a renaissance in its efforts to understand war and its application. Central to this rebirth has been the resurrection of Clausewitz. The theory of war, he wrote, is rooted by the interplay of three phenomena: chance, human passion, and policy formulation.³ This

paradoxical trinity of war, while a much heralded paradigm for postulating theory, is nevertheless, not quantifiable. This permits the paradigm to be subject to wide debate, particularly in reference to how it maintains a balance of these tendencies: the government, the people, and the commander with his army.⁴

Perhaps because these "three aspects" can never be quantified, military institutions and practitioners continue to demonstrate an affinity for theories offering some degree of certainty. Hence, Baron Antoine Henri de Jomini's attempt to pierce the obscurities of war to arrive at a "small number of fundamental principles" became part of the U.S. Army's ongoing quest for certainty.⁵ This is not to argue that military art has to be quantifiable. Rather the essence of military theory stands as the first link, seen in figure 1, in the chain of theory, doctrine, and practice. It may indeed be defined as the relation between the constant (principles of war, physical geography, human nature) and the variable (tactics, logistics, friction).⁶

Clausewitz and his contemporary, Jomini, are but two of the more prominent military theorists who have bestowed the US military with

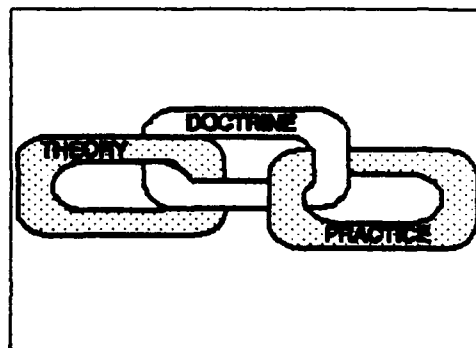


Figure 1
Linkages of Military Art

the underpinnings for American landpower theory. Both drew their thoughts about military art from experiences in the Napoleonic

wars and arrived at different conclusions about how the art is practiced. Where Clausewitz emphasized chance and uncertainty in war, Jomini adhered to specific principles that could guide the conduct of war.⁷ While both advocated the inherent value of theory, neither fundamentally agreed on the true nature of war. A similar disagreement exists today within the U.S. military.

Without waiting for a joint service consensus, the U.S. Army has been a strong proponent among the armed services in presenting a uniform construct of war with three levels: tactical, operational, and strategic.⁸ U.S. Army Field Manual (FM) 100-1, The Army, now furnishes the authoritative foundation for what is arguably America's basic theory of war.⁹

Among the highlights in the Army's approach to war are the three functions of an army—the prevention and control of war, and once ensued, the favorable termination of conflict. These functions are collectively called the operational continuum in emerging U.S. Army doctrine.¹⁰ Within the sphere of this continuum, the Army has important responsibilities and operations in each function in roles described at the strategic, operational, and tactical levels. Since 1982, the Army as a whole has concentrated its study of war beyond the tactical level. Since the birth of "AirLand Battle" doctrine, debate and discussion about the operational level of the art has been remarkable. Today, senior leaders and complementary staffs are able to address practical problems at all three levels of war. Yet, there is much to be done. The armed services continue to strive to define and

refine this nation's theory and understanding of war. The formulation of a future winning strategy depends on it.

Poised for Change

Congress, and Americans at large, have recently developed an interest about how the U.S. defense establishment develops military strategy. Thanks to the favorable outcome of Operations Desert Storm and Desert Shield, Congressional interest has only intensified about U.S. military strategic thinking.¹¹

Recent testimony in Congress as well as in open literature convincingly show that the development of military strategy cannot be done in isolation of the three elements of national power: economic, military, and political.¹² As to where military strategy "fits" into our nation's projection of military power, one can see in Figure 2 how it is a subset of military policy. The reader will note that military policy is not a discrete product of national policy. Indeed, it must connect with both economic and political policies in order that it be effective.¹³

To put the formulation of military strategy into perspective, the reader should note its central

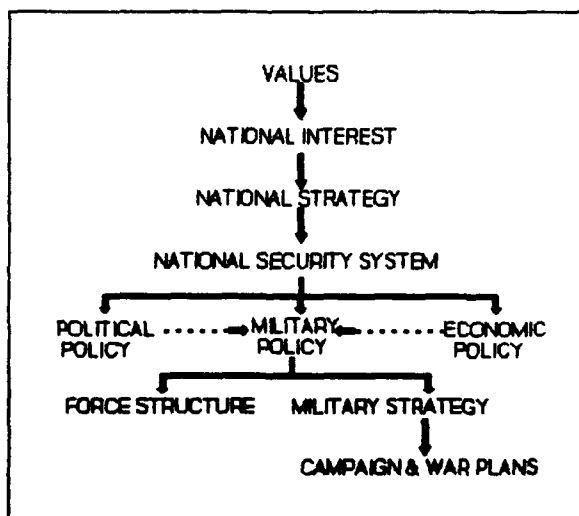


Figure 2
FORMULATION OF MILITARY STRATEGY

role to assist the U.S. in attaining and protecting its interests at any stage of the operational continuum.¹⁴ From the national level, national strategy supports U.S. interests, objectives, policies, and programs. Its constituent elements include (in addition to the military): economic, political, and psychological factors.¹⁵ These elements encompass the broad goals which have guided American foreign and defense policy throughout the life of the Republic.¹⁶

Figure 3 illustrates military strategy overlapping national strategy to indicate the former expressing the same interests and objectives that national strategy supports.¹⁷ As does national strategy, campaign planning overlaps with military strategy from which, in turn, it draws strategic and regional bearing.¹⁸ Campaign planning takes a "comprehensive view of the CINC's

theater of operations and defines the framework in which an OPLAN fits."¹⁹

The presence of the overlapping between campaign planning and military strategy and between military and national strategy suggests there are no linkages between the war planner and policy maker.

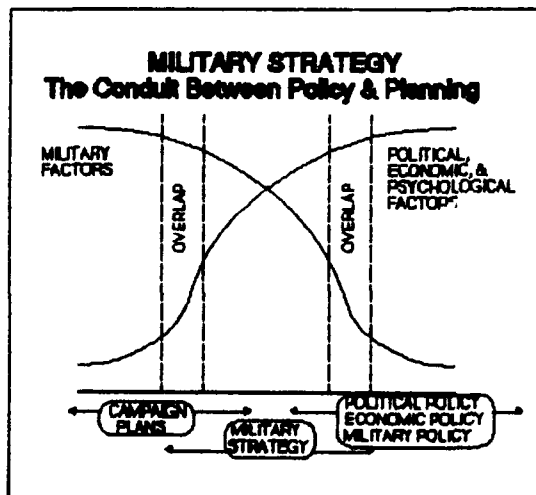


Figure 3
Formulation of Military Strategy

Certainly, as figure 3 shows, there does exist a reciprocal level

of concern between the two. The campaign planner concerns himself with issues unique to the military environment. His spectrum requires consideration for: mobilization, deployment, employment, and sustainment planning.²⁰ Military factors are paramount to a planner. Understandably, the planner's focus on other elements of national strategy are minimal. For the policy maker the focus is reversed. His interest is in national strategy and the interplay of the instruments of national power.²¹ If there exists a crossover region wherein the planner and policy maker need to "play" in each other's "sandbox" it probably falls within the realm of military strategy. This is the domain of JCS and the CINCs. It follows that for military strategy to achieve a Machiavellian standard of effectiveness in its support of national strategy, a CINC must include the political, economic, and psychological elements.²²

If military strategy is the conduit by which the armed services support national goals, then how well does the element of economic power integrate into war plans? Granted this monograph cannot cover all the issues of the economics of national security. However, there are economic perspectives for war planning in the application of military power at the operational level which need to be explored. Specifically, how can this consideration of U.S. economic end state conditions improve military campaign planning?

Addressing this question may further the dialogue toward a unified American theory of war. This could ultimately serve as a broad guide for strategy formulation and operational doctrine.

Sound doctrine is often the least expensive and most effective way to increase an army's fighting effectiveness.²³

Framing War's Canvas

This monograph is organized into six sections. Part I begins with an overview of war planning at the operational level. Its focus is on possible enemy economic military objectives to include their consideration as economic centers of gravity. Part II takes historical cases to help appreciate the importance of economic objectives at the operational level. Part III examines Clausewitz's theory of war in light of the economic dimension. Part IV analyzes this dimension as to how it affects military or operational decisions in the context of war planning. Part V assesses the economic influence on operational decisive points and centers of gravity and the incorporation of economic power in the formulation of military strategy. Part VI uses a framework of ends, ways, and means as the criteria to touch upon the causal links between economic factors and Clausewitz's theory of war.

Part I

Toward the Post—Cold War World

There are some policy makers and military planners who say that there is little value in the integration of economic matters in the development of a war plan.²⁴ This monograph shows how false and dangerous that supposition may be. Granted the importance of the economic dimension in the theory of war has been less than obvious.²⁵ Over the many years since On War was

first published, there has been at best a glacial drift toward awareness of economics in the military arts.

To investigate why the economic domain remains so remote to operational planning, one must first understand why a problem even exists at the level where war plans are formulated and approved. In keeping with the spirit of military planning, the National Security Council is the principal forum that considers national security issues and directs the projection of national power.²⁶ It is the only level where political, military and economic policies are reviewed and formulated for national security considerations. Military policy is carried out exclusively by the Department of Defense through the Chairman of the Joint Chiefs of Staff (CJCS), who tasks each commander in chief of a unified command (CINC) to prepare a plan of military action in a hostile environment within his region.²⁷ The product is a process of campaign planning which takes a comprehensive view of the CINC's theater of operations and defines the framework in which an Operation Plan (OPLAN) fits.²⁸ Therefore, a CINC prepares a series of OPLANS with a singular purpose and a common objective under one Campaign Plan.²⁹ Under the JCS deliberate planning process, a CINC's OPLAN is reviewed and approved by the JCS.³⁰ It normally does not receive much attention at the NSC level until a crisis arrives. By then, any chance that a military solution includes economic considerations is probably remote. Herein is the dilemma of having plans which take into account the economic perspective.

Karl's Legacy

The issue of not considering both friendly and enemy economic vulnerabilities at the CINC level is a critical shortfall in today's operational planning. Our war plans are simply not complete in considering all dimensions of conflict. The planning assumes military objectives are military in nature, thereby overlooking or not giving full consideration to economic objectives which may be more decisive than a military objective in accomplishing the CINC's war aims. The essence of today's military art may indeed be defined as the relation between the constant (principles of war/physical geography) and the variable (human nature/tactics/logistics) aspects of military science.³¹ Nowhere does military action/activity balance economic, political and military values. A similar observation provided by the Polish economist, Jean de Bloch, corroborates this point. Bloch stated, "the economic and social consequences of war, if they are considered at all, are considered only as secondary or tertiary objects."³² Bloch's point is that the tactical and strategic challenges of the next war are not military but economic.

To respect Bloch's message, war planners must do more than think of military aims as being achieved only through military action. An operational planner should investigate the particular contribution which economic policy makes to understanding the causes of war and its prosecution. Armed with an appreciation for the economic dimension, the operational planner can better define the conditions under which war can be fought or avoided.

Part II

The Unfolding Changes in Military Power

Today's approach in studying theory necessitates a look at war within the broader context of conflict.³³ According to one modern day military theorist, Mr. James Schneider, conflict arises when groups or individuals, animated by a resolve to initiate purposeful action, seek to attain future goals or ends that are in opposition.³⁴ If this is so, then war is not just a conflict of armed aggression. "Purposeful action" includes economic means as well as military means. Politics and economics are the two social interactions which, historically, can be found to be the cause of most modern wars.

James R. Schlesinger, a noted economist and former Secretary of Defense, draws the same conclusion:

Almost every human problem will have its economic aspect. Desires are unlimited, yet no individual or institution has command of either the resources or time (a type of resource) to achieve all the ends that may be regarded as desirable. Therefore, it becomes necessary to exercise choice among the many possible alternatives, to establish a scale of priorities, in short, to economize.³⁵

In all human endeavors, war included, the selection of goals (ends) and the disposition of means (ways) are fundamental, and this is reflected in the primacy of economics.³⁶ Economics, which concerns the problem of resource allocation, is often referred to as "the science of choice" and is particularly useful in determining how a nation may employ its resources in order to achieve its military aims.³⁷ Military objectives must be weighed in a similar vein at the tactical, operational, and strategic

levels because they will always be constrained and shaped by political and economic aims given available resources. From the earliest wars, economic and military power have maintained a close relationship to national power.³⁸

History shows that the linkage between military power and economic power is far from clear-cut. A short historical anecdote may help to illustrate this unique relationship between economic ends and military means in strategy design. In most cases, the important linkage is in the shaping of a nation's grand strategy. Fundamentally, grand strategy is determined by a nation's industrial base.³⁹

In both World Wars I and II, German military strategists sought to maximize military gain utilizing most effectively Germany's limited economic resources. Both the Schlieffen Plan and Hitler's early victories of Poland and France were rooted in the necessity of a rapid victory. The point that these wars were coalition conflicts meant that their duration would likely increase.⁴⁰ Given such an outcome, each side developed a strategy to accommodate the facts of an exhausting and expensive conflict. Axis war plans considered as significant the danger of being tied to a protracted conflict whereby Germany would by necessity have to expose her inferiority in resources.⁴¹

In WWII, the Germans took economic considerations into their strategic war planning as they sought to achieve quick operational victories. But unlike pre-WWI, German rearmament in the 1930's drew little response from the allies until the end of the decade

when it was too late.⁴² German mobilization plans reflected their operational war plan which sought rapid achievement of military objectives with the forces-in-being. Schlesinger notes how the German World War strategies were economically driven:

The plan was to strike the enemy with the accumulated equipment of war. Hitler had been unwilling in the thirties to restructure the German economy for sustained military production, for that implied several years of heavy investment in capacity with no immediate returns and large sacrifices by the German population. This was the policy of '*armament in width*' as opposed to '*armament in depth*,' the latter implying a basic restructuring of the economy. Germany's advantage lay in quick war in which the accumulated production of several years would yield a quick victory.⁴³

Despite the postwar criticism of Germany's policy of *armament in width*, it was in harmony with her operational and strategic plans. Furthermore, Germany did achieve a rapid build-up of her military and came close to achieving her goals.

In retrospect, Germany and the Allies achieved their ends by different military means. Britain and the U.S. tended to view warfare in terms of total commitment and long duration. This was antithetical to the German approach which was captured in their operational/tactical concept of blitzkrieg. For the allies, wars were to be won by the gradual application of the pressures of economic superiority.⁴⁴ Fortunately, both Britain and the U.S. mobilized early toward a wartime economy so that the demands of total war could be met. Germany, expecting to achieve successes rapidly and without protracted conflict, chose not to develop a wartime economy until 1943.⁴⁵

The role of industrial mobilization is critical to

understanding how the economic domain influences military strategy. In any economy, in order to maintain maximum material well-being and physical production, a balance should be achieved in the allocation of resources." Industrial mobilization requires a reallocation of these resources. In a peacetime economy with market forces at work, this balance is usually in the favor of improving a nation's standard of living. In a wartime economy, the balance shifts to military requirements at the expense of a nation's consumers. This causal relationship also explains why industrial mobilization becomes a political decision even though it has profound military implications." If the purpose of production in a particular state is directed toward military effectiveness rather than consumer well-being, then the impact of mobilization will obviously be less for a centrally controlled economy than for a market oriented economy.

The world wars illustrate that a nation's economic objectives are inextricably linked to military strategy and operational planning. Schlesinger correctly points out that "a nation's economic resources will influence its military planning, yet, in turn, the military strategy will affect the organization and use of economic resources." For example, in August 1914, European military experts were well prepared for mobilization. Unfortunately, their war plans were based on expectations, that while logically sound, were tragically wrong." Most experts thought the war would be quick based on recent conflicts such as the Schleswig-Holstein campaign of 1864, the Austro-Prussian war

of 1866, and the Franco-Prussian war of 1870.⁵⁰ Many also believed that technological improvements in armament and transportation (rail and road) also increased the chances for a quick resolution of the war. Hence, military planning assumed the economic cost of war to be minimal since a war of exhaustion would not occur. A plan that was bold and decisive could significantly offset industrial mobilization.

In WWII, the early successes of Hitler's blitzkrieg strategy partly explain the Third Reich's failure to mobilize the German economy.⁵¹ German confidence in swift, total victory meant that German troops in Operation Barbarossa were logistically ill-equipped before they started toward Moscow.⁵² As Albert Speer noted in his memoirs, total German mobilization was not seriously attempted until 1943.⁵³

Since WWII a remarkable, but perhaps not surprising, transformation has occurred in America's ability to wage a major war. America's present economic capacity cannot refight this last total war.⁵⁴ The US has shifted from a strategy of armament in depth to one of armament in width. The Soviets today are very much a champion of the former strategy.⁵⁵

Given today's economic conditions with an eye toward twenty-first century world affairs, America's limited capacity for wartime production will more than likely restrict a CINC's warplan. The CINC's vision is one of winning battles with the right force mix fully supported by the rapid mobilization and continuous availability of resources. The CINC's dilemma is that

his war plan comes with no guarantee of full support.

Part III

Rethinking the Trinity

To address adequately the issue of harmonizing economic sufficiency with military planning, the modern-day military practitioner should understand the aspect of the economic domain as it pertains to Clausewitz's theory of war (Trinity). Unlike Clausewitz's era, modern wars are fought with full regard to the economic domain: material, technological, and economic. One strategy for overcoming the Trinity's limitation is to redesign its structure so as to include the economic dimension.

To convince the reader that economics is a necessary aspect to the theory of modern war, one must show linkage between Clausewitz's trinity and the economic domain. The conclusion, seen in figure 4, is one of causal connections and argues that

within this pyramid of competing components, a well-crafted national military policy can be developed.⁵⁶ A synthesis of the pyramid's elements will lead directly toward a modern concept of military strategy. Correspondingly, war plans support such aims.

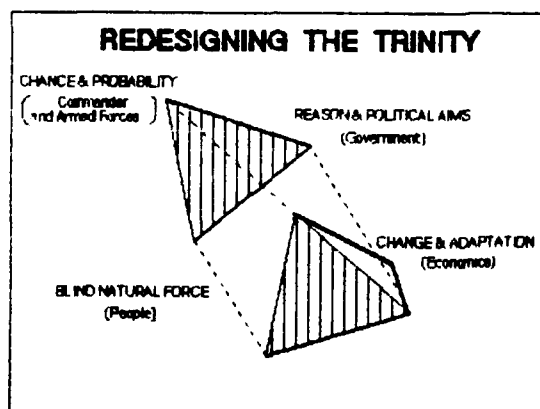


Figure 4
The Trinity evolves into a Square

Using his trinity theory, Clausewitz sufficiently explored

the synergies of politics, military art, and national will. The interplay of these tendencies appeared to Clausewitz to be all that is embodied in the sphere of war. In On War, he never really concerns himself with exploring to any intellectual degree the aspect of economic power. Yet, it is the most decisive destabilizing factor in initiating conflict.⁸⁷

Clausewitz mentioned two important causes of war: First, human nature (the primordial violence and blind natural force inherent in people);⁸⁸ and, second, the need to restore equilibrium (a balance of power, i.e., political, economic, military, and geographic).⁸⁹ Maintaining military equilibrium has a lot to do with balancing economic power. Coalition powers or any two nations that see their opposite as gaining militarily an upperhand has been a past precedent for preemptive and open war as illustrated in figure 5. In its most elemental form, the doctrine of economic versus military equilibrium "expresses the conviction that economically inferior nations are in no position to throw down the gauntlet to economically superior powers."⁹⁰

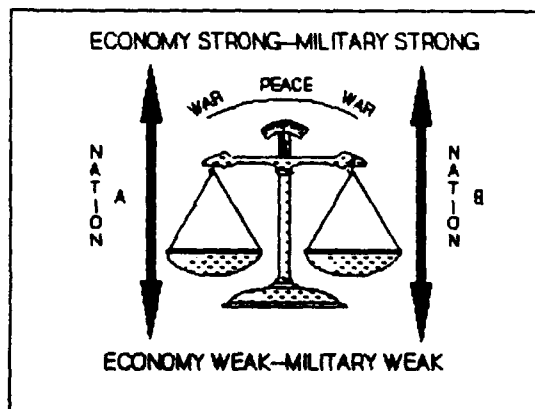


Figure 5
Economic Capacity and its Effect on
Military Strategy

Until the end of the Cold War, the size and composition of a modern army was predicated in large measure on

the economic strength of the state. Modern history is replete with wars driven by economic processes.⁶¹ As we near the 21st century, an army's size will not be as important as its composition or force structure. Essentially, an army with a technological edge can improve qualitatively the composition of its armed forces; thereby, forgoing mass (in sheer numbers of weapon systems), to remain decisive. Military power is weighing dramatically in favor of Western technology brought about by market forces. The scale of military power will become even more asymmetrical in favor of the US as the quality of its weapon systems improves exponentially over that of the Soviets.⁶² Economics plays the pivotal role in determining technology's direction and growth. If military equilibrium is ever to be restored, the Soviets will need to completely overhaul their economic system.⁶³

In modern times, rapid mobilization and the accelerated capability to execute war have made economic circumstances by which war breaks out more relevant to military strategy. Hence, war plans must address economic centers of gravity which are the "hubs" of a nation's capability to wage war.⁶⁴ Unfortunately, this is easier said than done. For example, a CINC's contingency plan for a limited war within his region will often leave him with the responsibility to identify acceptable conditions to an end state which has to be politically acceptable.⁶⁵ Clausewitz would traditionally lead the CINC to attain such an end state only through force (military conditions set by military means). Here

another source of war's friction is added to the CINC's palette. As an operational artist, he must consider not just the military costs and benefits of war but also the need to adjust such burdens to a level acceptable to economic and political ends.⁶⁴ If strategy in Clausewitz's time was the art of using force on the battlefield to achieve political ends, then military strategy today is the art of using force not just against military decisive points but economic points as well to achieve the same political objectives. Strategy includes the art of subduing your enemy through means other than military action against his army.⁶⁵

In sum, if Clausewitz's trinity is indeed both unchanged and changeless, economics may be the additional factor required for a clearer and more adaptive theory of contemporary and future warfare. Without this dimension, we may fail to see the new problems and opportunities that war may present.

Part IV

The Economic Dimension

Retrospectively, WWII appears to be an ideal illustration of the impact of the economic domain on national strategy and the war plans formulated to implement it. In modern times, the influence of this dimension has garnered an even greater role in war planning. The military leader of today faces a world where war can be waged within an operational continuum never conceived by Jomini or Clausewitz. Indeed, a CINC today often plans to wage a limited war wherein he must find acceptable substitutes to achieve victory. In such scenarios, the element of economic friction has

been introduced since the CINC must now consider not only the costs and benefits of war, but also the need to adjust his military aims to a level acceptable to political ends.⁶⁶

From Clausewitz, military aims describe the art of using armed force on the battlefield as the means to achieve political ends.⁶⁷ His object of war in achieving these ends is to destroy the enemy's center of gravity.⁷⁰ To modern strategists this translates to a single center of gravity at the operational or strategic level—the enemy army.⁷¹ Pure Clausewitzian thinking unfortunately obscures the strategist from seeing economic centers being just as vital to collapsing an enemy's will to resist.

Admittedly, the economic domain never entered into Clausewitz's thinking about a comprehensive framework for the study of war. In large measure this was probably due to his never witnessing war's full transformation brought on by the Industrial Revolution. The revolution's impact was chiefly economic and brought to industrialized states a new appreciation for the

economic dimension. Within

this domain (see figure 6)

emerged two significant

factors: technology with

its contribution to

production methods,

communications,

transportation, and economic

power. The impact of

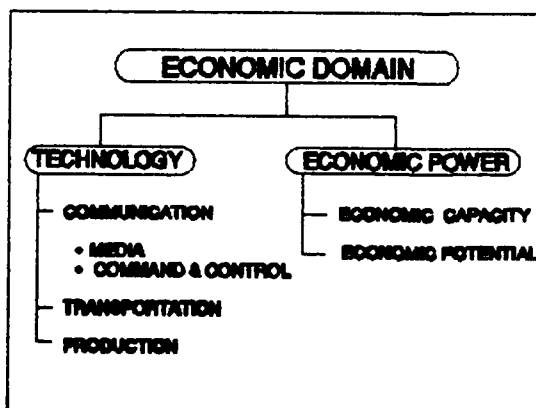


Figure 6
Economic Dimension

technology represents the aspect of change which can be argued as the missing dominant tendency to our modified paradigm in figure 4. Economic power captures the key elements of this domain's input to national power through the two concepts of capacity and potential.⁷² The idea of economic potential contains in itself no hint of the time element, yet the time element goes to the heart of the relationship between economic capacity and military power. It ignores the degree of the readiness of a state's economy, but focuses on the rapidity of conversion (peace to war) so central to the issue of industrial mobilization. The utility of economic potential is its allowance for the "drastic change possible in volume of output between peace and war."⁷³

Clausewitz was obviously a theorist with experience drawn from his time trying to write about the conduct of war for all time. He was simply not aware of the qualitative edge that the economic dimension would prove to be in the conduct of modern war. Had he been, his notions about the essence of war would doubtless have developed far differently.

Model

Ever since the end of World War II, two nuclear superpowers have arbitrated the world's affairs into two polar groups. Each group had its allies, alliances, satellites and proxies. Each attempted to balance the other, missile for missile, plane for plane, and ship for ship. That balancing act is over.

Today, we are witness to a most profound change in modern history— a revolution in the very nature of U.S. military power.

Yesterday's bipolar world saw America's armed forces defensively employed to fulfill the national strategy of containing communism. Since the end of WWII, the U.S. "has deemed it a vital interest to prevent any hostile power . . . from dominating the Eurasian land mass."⁷⁴ This has required a commitment to forward defense and forward military deployments to contain Soviet expansionism.⁷⁵ The Korean, Vietnam, and Grenada conflicts were but a few of America's past attempts in conforming a military strategy to a national strategy of containment. To Clausewitz this military strategy also meant that it possessed a negative aim—that is the use of every means available for pure resistance.⁷⁶ Clausewitz argued that while "defense is the stronger form of strategy <author's substitution for war> it has a negative object," and therefore, "should be used only so long as weakness compels, and be abandoned as soon as we are strong enough to pursue a positive object."⁷⁷ That moment of pursuing a positive object (strategy shift) occurred during 1989 when the USSR lost its superpower status leaving the U.S. no longer in a balance of strength.⁷⁸

The present day multipolar world finds the U.S. with an offensive military strategy to accomplish America's expanded strategy of free access— a positive aim. This notion is depicted in figure 7. What is occurring in the 1990's is not merely a transfer of military power. Military power is being transformed. Power is shifting so swiftly that world leaders are being swept along by events, rather than imposing their own will upon them.⁷⁹ Of particular note is the fact that current national strategy is

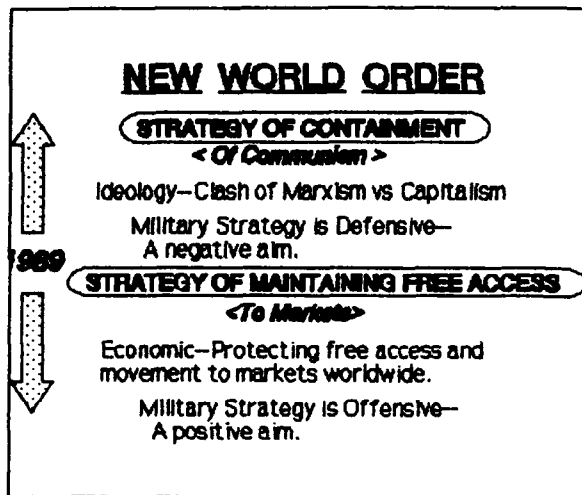


Figure 7
The Shift in U.S. National and Military Strategy

driven principally by economics not by ideology. These epochal changes present a challenge to any modern day strategist who recognizes this dramatic shift within military strategy. The strategic landscape now includes economic power within an

international context.

As a start on this endeavor, the strategist may consider identifying certain economic decisive points that advanced economies will have. This paper offers five distinct features of economic decisive points, which may help isolate an economic center as the source of all power. Each feature may exist as an unique occurrence or in combination with others. In no particular order, they are seen in figure 8 as: convertibility, connectivity, availability, interactivity, and mobility.⁸⁰ The first principle of the new military power shift is

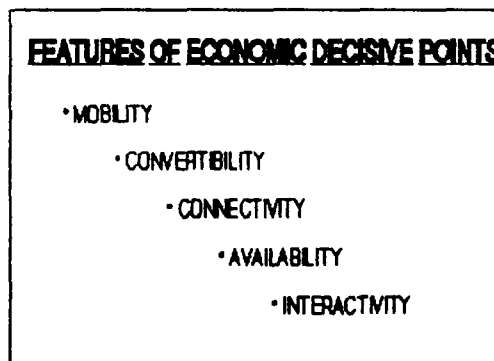


Figure 8
Economic Decisive Points

mobility. Mobility as an economic feature is the displacement of combat power anywhere to anywhere via any means. The recent success of Operation Desert Shield in projecting heavy and light ground forces rapidly into a remote theater of war clearly illustrates this element of mobility.⁸¹

The second principle is convertibility which reflects a nation's capability to transfer economic power into military power. Part II of this paper argues that the Germany of WWI and WWII possessed economies that featured armament in width versus the historical U.S. structure for armament in depth. Today the U.S.S.R. is clearly a nation which is geared toward armament in depth. It possesses, for all intents and purposes, an economy designed more for wartime than for peace.⁸² The U.S. posture has reversed since WWII to where we are clearly an economy of armament in width. Replenishment of war losses can be seen as a disjointed and unconnected effort since the U.S. sustainment base reflects many assembly lines producing in limited quantities, while others have been shut down.⁸³ Only if impending war could be delayed for a considerable length of time could America's mobilized industrial base meet the convertibility criteria in ramping up to a wartime economy. Figure 9 below contrasts the U.S. and Soviet industrial bases and their support relationship to the war effort.

Connectivity is next—the ability to connect a nation's military power with another aligned nation. In computers, it is the ability to transfer information from one medium to another.⁸⁴

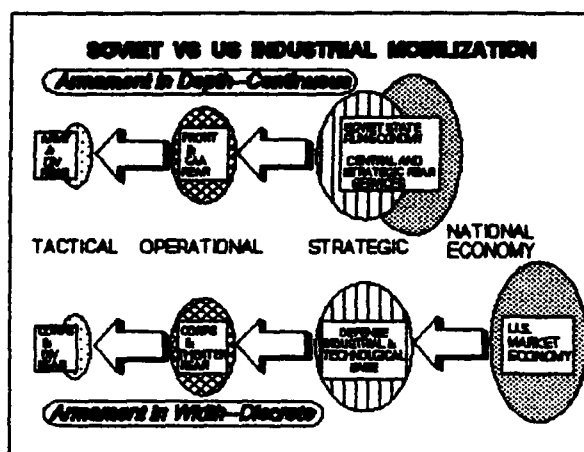


Figure 9
USSR vs US Military Industrial Base

In military strategy, it is the ability to transfer or receive economic power to assist, underwrite, and/or supports military power. Again, Desert Storm offers a clear example of modern warfare's connectivity. To support

the cost of this Operation, the United States sought cash payments from its allies to alleviate America's financial burden to wage war.⁸⁵ The United States could have gone to a wartime economy only at great expense and risk to its infrastructure in order to pay for Desert Storm.⁸⁶ Fortunately, this was only a limited—not total—war.

The fourth principle, availability, is the day-to-day readiness of forces for employment to avert crises and prevent war. Availability ensures military power is accessible for use across the operational continuum. Availability also demands that America has the capacity to concentrate power rapidly in critical areas. Having forces ready for use includes, but is not limited to, rotational deployments, port visits, stationing of forces, and security/humanitarian assistance. The concept is akin to the U.S. military strategy of Forward Presence.⁸⁷ Although U.S. forces are oriented toward threats in their particular theater, forward-

deployed forces must also be available to reinforce operations in other areas—as did about half of the forces in Europe for Desert Storm.⁸⁸ In order that modern armies appear seemingly to be everywhere at the same time requires economic strength to maintain and sustain such omnipresence. For the United States and the Soviets, this means a world-wide commitment.⁸⁹ The Soviets still retain massive military forces on the Eurasian landmass. Despite the Soviet's ambitious reforms, the "specter of residual Soviet military power will continue to loom over its neighbors."⁹⁰ Therefore, it remains essential to maintain a capability to globally counterbalance the Soviet potential."⁹¹

The fifth and final feature is interactivity. A modern nation's military cannot be passive to world events. The military must be proactive to better control future events. This element of proactivity can be assessed in developing and formulating military strategies which require participation of other armed forces in a form of collective security. In today's multipolar world nations are no longer constrained by security alliances of political East versus West ideology. Nations now look toward economic power rather than military power in collective security arrangements to protect and further their goals.⁹² A present example is the emerging military security arrangement for a post Cold War NATO. The need for an alliance coupling economic power with military power stems from potential situations which may be vital to European security interests but do not require military intervention as an option.⁹³

These five economic features, representing possible decisive points of economic power, when combined with the Clausewitzian methodological constraints of people, government, and armed forces, collectively etch a more complete blueprint for the essence of war. The economic domain acts as a metabolic nervous system regulating each aspect of Clausewitz's trinity. It makes the modified trinity (figure 4) a theory of war far more flexible and complex than ever imagined. It is a paradigm of the nature of war for the 21st century.

Part V

Military Strategy

The application of military power and consequential military strategies are being reshaped by today's economic realities. Yet this is not a new phenomenon. The economic dimension has influenced conflicts such as the seven major Anglo-French wars fought between 1689 and 1815.⁸⁴ Essentially these wars were struggles of economic endurance. Victory went to the coalition with the greater capacity to maintain credit and keep on raising supplies and revenue. It was this need to raise money to pay for wars that Paul Kennedy, author of The Rise and Fall of the Great Powers, saw as a leading cause of conflict:

This problem of raising revenue to pay for current—and previous—wars preoccupied all regimes and their statesmen. Even in peacetime, the upkeep of the armed services consumed 40 or 50 percent of a country's expenditures; in wartime, it could rise to 80 or even 90 percent of the far larger whole!"⁸⁵

Additionally, WWII is an ideal illustration of two coalitions waging war applying different strategies driven by

economic capacity. Recent and past history thus proves that modern military strategy evolves around a nation's capacity to wage war.⁸⁶ Despite the intervening limited wars of Korea and Vietnam, a not so subtle change in the American emphasis upon economic capacity occurred. In the long run, WWII was America's last triumph of production and logistics enabling the allies to execute a winning military strategy. At the present time, Desert Shield and Desert Storm have exposed America's gradual change from a nation of armament of depth to that of width.⁸⁷

In a materiel war of exhaustion, we probably cannot turn out more military hardware than our rivals—even if time was not a factor. Compare, for example, the size of the Iraqi force, built not by Iraqi production, but paid for by oil revenues (Western dollars). Without an effective United Nations embargo, we could have faced a rival capable of continually purchasing armaments on the world market while it waged war. In theory, an opponent could reconstitute his materiel losses via arms purchases faster than we could mobilize our industry to replenish our losses. India, South Africa, China, and North Korea are but an obvious list of nonaligned nations who possess large forces-in-being and influence regional areas of conflict through arms exports.⁸⁸ With respect to possible scenarios of future war, America's policy to emphasize economic power leaves grave doubts to its relevance given the costs of such future contingencies.⁸⁹

Conflicts since WWII, and particularly Desert Storm, suggest that future operations may be wholly unlike those great

conflagrations that Clausewitz's theory of war adheres to.¹⁰⁰ Additionally, the concept of economic capacity is gaining greater attention because the costs of sustaining any sizable army rapidly depletes a nation's treasury. Today each CINC's strategy for waging war in his region must recognize that the significance of America's economic capacity and that of the enemy is likely to prove decisive in future conflicts.

At the NSC and JCS level, the limitations of America's economic capacity must realistically temper CINC war plans and aspirations. To illustrate this proposition, a CINC's plan assumes logistic superiority and a continuous flow of war-related resources. What is no longer meaningful is America's capacity to meet the total number of troops that can be maintained or to maximize armaments production to sustain significant losses and replacements. Hence, few war plans project the economic burdens and impact of a protracted conflict. Under these circumstances, general and abstract indicators of America's economic capacity to wage war may direct a war planner to look for critical shortfalls in a CINC's war plan. Certainly no planner wishes to mislead his commander that his plan has the potential to achieve any goal, any place, any time.¹⁰¹

Given modern conditions and the multipolar world, the role of economic capacity has been transformed. In the military sphere, the role of economic capacity still must be considered but it is no longer the vital factor in strategic planning it once was in other major wars of this century. As the danger of absolute

war with another superpower recedes, the abstract measures of overall economic capacity to wage such a war have grown less important.¹⁰⁰ On the other hand, limited wars, such as Just Cause and particularly Desert Storm, must be judged in light of the special circumstances surrounding each conflict. The military capabilities of the U.S. economy versus that of its two most recent adversaries depend upon specific strengths in meeting the unique needs and characteristics of the conflict rather than upon measures of overall military strength (order of battle).¹⁰¹

Given the proposition that economic capacity no longer provides the decisive edge in future war, what does render the key to an economic center of gravity? In order to consider the new role of a transformed economic capacity, we must address a new framework to make use of economic considerations. The object is to isolate possible economic centers of gravity for consideration in a CINC's campaign plan. The utility of such a framework allows a CINC to locate an adversary's decisive points and appreciate his own vulnerabilities as a center of gravity for the enemy.

Economic power is but one aspect of the economic dimension. The other facet (see figure 6) is technology. Economics that have spawned revolutions in technology keep transforming the methods by which war is waged. Technology allows for changes in how economic and military decisive points and even centers of gravity can be quickly and efficiently eliminated. Although Clausewitz recommends a war of annihilation whenever possible, modern warfare is clearly more than the decisive battle of two great armies.¹⁰²

Rather, it represents a clash of technology and economic resources—the product of an entire population.¹⁰⁵

Since the technological genesis of modern war in the American Civil War, a planner's focus has been on emerging operational doctrine and tactics driven in large measure by the performance of new weapons and materiel. Today, military planners are witnessing new technologies that literally may change traditional means of waging war. For example, the destruction of the enemy's army—so central to Clausewitz's theory—becomes only as important, or less important, when the true "hub" of the enemy's will to resist is finally identified. In modern war, this hub may be the elimination of economic centers or occupation of industrial centers necessary for the maintenance of enemy forces in the field.¹⁰⁶ As the nature of war transforms rapidly and irreversibly because of

technological change, so too must military strategy and corresponding campaign plans adapt to change. The phenomenon of change and the reflex of adaptation, therefore, merits inclusion

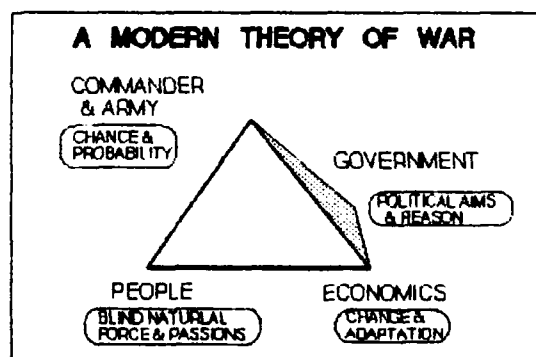


Figure 10

in our "pyramid" of theory. The scope which the play of change and adaptation contribute to war is in the realm of economics. This notion is illustrated in Figure 10.

Part VI

Analysis

The absence of a single criterion for assessing an economic center of gravity or corresponding decisive points is not hard to understand. We recognize that economic power varies in magnitude depending on who the adversary is. The discernment of an enemy's military needs and the robustness of his economy in responding to those needs may be key to determining measures of economic capacity. Seeing economic decisive points as a subset of economic capacity correspondingly shapes military strategy. As stated, economic capacity determines the composition of armed forces. Hence, the effectiveness of a nation's military strategy and the viability of any supporting campaign plan is dependent upon the composition of the military forces and their suitability for countering and reacting to specific threats under a multitude of circumstances.¹⁰⁷ Given this perspective, economic capacity is a 'hub of power'.

A few useful criteria to assess possible "centers of gravity" of the enemy's economic domain are the three elements of

military power formulation:

ends, ways, and means.

These familiar elements, as depicted in figure 11, are essential to the development of any campaign plan. In military planning the

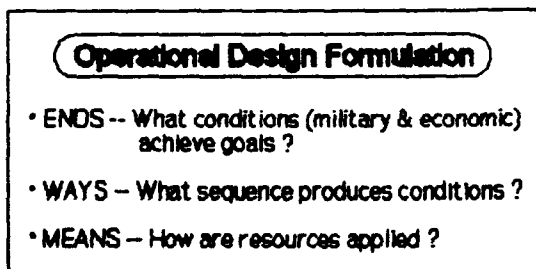


Figure 11
Ends, Ways, & Means

operational practitioner cannot afford to judge each element in purely military terms. Yet, if one is a true Clausewitzian, then his logic is self-evident. The modern practitioner of operational art must expand his evaluation beyond Clausewitz's classical trinity to include the elements of the economic dimension.

Ends—What the Strategy Must Do

The first test is that of ends. The ultimate value of a nation's military power is determined by its ability to further or achieve its political ends. At the strategic level, political ends and military ends are inseparable. At the operational level the relationship becomes a process of calculating and coordinating assets and applying methods to achieve the strategic aims. Ends set conditions. At the operational level, conditions are established which allow access to the strategic center of gravity.¹⁰⁸ Using elements of the pyramid (figure 10), the operational planner then looks for both military and economic decisive points which will render a center of gravity more vulnerable to attack and destruction. The planner will consider the enemy's armed forces, its government, and people. The planner will also consider economics and seek its decisive points using the five economic features to ascertain their value to a center of gravity. This process will assure that economic centers of gravity are given consideration in planning.

One economic feature is mobility. The extent to which mobility can set the conditions for the achievement of a military end state should be clear from our recent experience in the

Persian Gulf. The rapid deployment of forces during Desert Shield established the first condition of our war plan by forming America's line in the sand.¹⁰⁹ Second, the speed and size with which the forces deployed set the conditions for the defense of Saudi Arabia and allowed for a build-up of multinational forces. Conversely, the mobility that Iraq possessed could have proved just as decisive as our own.¹¹⁰ Granted, Iraq was not capable of deploying forces world-wide, but there was no need. In their strategic realm (Middle East), Iraq enjoys geographic power which allows them to rapidly move large forces throughout the region.

The concept of economic capacity also proved key in determining both U.S. and Iraqi mobility. A U.S. center of gravity could have been the lack of sufficient merchant marine ships to rapidly float its heavy armaments. This shortfall is purely economics. To move such a force, the U.S. could not rely solely on its military transports to achieve its ends. Hence, commercial shipping, rail, and aircraft were vital to Desert Shield's success.¹¹¹ The merchant marine fleet has greatly decreased in size and capability since the 1960's because of cheaper overseas wages and operating costs.¹¹² Likewise, the mothballed reserve fleet is much too ill-prepared for rapid deployment.¹¹³ Naturally, commercial shipping helped to make the deployment a success, but at great economic cost.¹¹⁴

Iraq had spent its currency on heavy equipment transports to gain a haul capability not matched by any Western power.¹¹⁵ An economic decisive point was Iraq's capability to move its ground

forces rapidly. The invasion of Kuwait on 2 August 1990 is testimony to the quickness with which Iraq was able to move its forces.¹¹⁶ The U.S. was caught unaware as to the capability Iraq possessed in mobility. Fortunately for the world, Iraqi forces did not conduct an immediate follow-on thrust into Saudi Arabia.

Ways—How the Ends are Met

The second salient element of formulating operational design is ways. In evaluating this criterion, one might begin by presenting Clausewitz's observation, "The best strategy is always to be very strong; first in general, and then at the decisive point."¹¹⁷ Two of our economic decisive points are useful for evaluation. The first is convertibility. Here the concern is how economic power becomes military power to produce conditions necessary to achieve the military end state.

The Soviets took Clausewitz's assertion about being "very strong" to mean quantity. This theme was reinforced by the Russian intellectual I.V. Lenin who claimed that quantity is a quality in itself.¹¹⁸ Hence, for nearly seventy years, the Soviet economy has evolved into an industrial base geared to producing massive and continuous quantities of war materiel (see figure 9). Keeping within the spirit of Clausewitz's "strategy of strength" the Soviets thought they understood his secret to the art of war. The Soviet state run economy has, of course, served this strategy well since 1929 creating an industrial base well suited to support military needs.¹¹⁹ Now that economic decisive point is changing from a Soviet strength to a vulnerability

because of their rapidly declining economy.

Clausewitz's "strength" no longer applies to sheer numbers. True it has served military analysts and, of course, the Soviets quite well for many years. What has changed is a revolution in microelectronic technologies which places the Soviets in a position where they cannot begin to catch up by quantity of material alone.¹²⁰ At the operational and tactical levels, computerization and the flourishing of smart munitions showed the Soviets that a revolution in military affairs is rapidly underway in the Western world—bypassing the Soviet economy.¹²¹

The Soviets, according to Soviet Military Power, are lacking in all important aspects in semiconductor materials, parallel processing, microelectronics, machine intelligence robotics, and software production.¹²² This shortfall in Soviet military technology when compared to the West is significant, but it must be tempered. "Better technology alone will never win a battle," warns Army Chief of Staff Carl E. Vuono, "but it does provide soldiers with an indispensable edge over potential adversaries."¹²³ Vuono's comment reflects his view of a key observation about lethality from Desert Storm. What the Soviets see in Desert Storm is not the relative lethality of an M-1 tank versus a T-72 tank. Rather, lethality is the *absolute* performance of the Western high-tech arsenal. American and allied forces are saturated with high-tech equipment which the Soviets can not begin to match until their economy is completely overhauled.¹²⁴

Clausewitz's "strength," if redefined, means quality.

Quality of materiel to achieve direct annihilation of the enemy independent of the number of systems required. The argument that sooner or later numbers would always tell is no longer valid in the 21st century.

Economic convertibility is clearly a decisive point for the Soviets. Soviet leaders recognize that their economy is pathetic with no chance for a quick recovery.¹²⁵ The Soviets cannot achieve parity, not to mention dominance, vis-a-vis the West in electronics and computers.¹²⁶ Soviet competition with the U.S. in military technology, as demonstrated in the Persian Gulf, marked a watershed for military strategy. The Soviets are destined to fall far behind until their anarchic planned economy is demolished.¹²⁷ When determining ways, the U.S. approach to convertibility is *armament in width*. Technology is the means used to achieve a decisive edge. The Soviets use *armament in depth*, but their convertibility feature is no longer viable. This is because Soviet economic potential is no longer relevant in mobilization for war.¹²⁸ Silicon technologies have given the West a decisive breakthrough in weapons of operational and strategic value that no amount of Soviet mobilization can overcome.¹²⁹

The next economic decisive point is availability. The capability in maintaining any semblance of a military presence is clearly a function of economic choice. For the U.S., its policy of world-wide forward presence means that forces committed to such a role are not capable of sustained combat.¹³⁰ Rather, they are

a less expensive alternative to keeping a large standing force overseas. To achieve some flexibility in this policy, the armed forces have pre-positioned stockages of materiel and support bases in overseas locations. The Marine Corps uses a system called Maritime Pre-positioning Ships (MPS) and the Army has POMCUS sites.¹³¹ These techniques enable the marines and soldiers to rapidly deploy and fall-in on their equipment without the cost of keeping them permanently forward deployed.

Means—the Application of Resources

The final criterion is means. Here connectivity and interactivity are at play. In Desert Storm, the economic cost of the multinational force was to be a shared burden among collective nations.¹³² The U.S. military, as the world's policeman, has a vested interest in fostering economic connectivity.¹³³ That interest is maintaining free access to world markets.¹³⁴

As an economic decisive point for the U.S., the staging of Desert Shield and then waging of Desert Storm kept open world access to the Persian Gulf region. Here the connectivity feature was dual hatted: 1) commit forces to keep a vital economic area open to world markets; and 2) economically support this force by financial donation from allies. Without adequate economic support the cost of waging war would have had significant implications for America. The stark reality of a deeper recession and lower consumer confidence (effects public support—will) may very well have caused some hard rethinking by Congress about the composition and size of the U.S. force committed to the cause.

The final standard is the economic feature of interactivity. Conceptually, interactivity is a reflection of two current trends in our world today. First, advanced nations, like the United States, are fiscally restrained from simply raising and/or maintaining a large modern military force. Second, there is the remarkable inclination, driven by political and economic ends, to solve crises in the spirit of a multinational effort. This is but one, albeit important, vision of the new world order. When evaluating interactivity against the standard of "ways," the criteria should provide insight as to its value as an economic center of gravity. In the recent past, nations were militarily secured through alliances which reflected the bipolarization of our former east-west world. Today, even NATO is struggling to find its identity and purpose for existence given the reality of a free eastern Europe.¹³⁶ The viability of nations joining together for security reasons is a product of the Cold War, which is gone.

Today, economics determines the course of a nation's strategy. The desire of advanced nations to maintain flexibility and freedom in choosing when and where their armed forces may be employed. The cost of contributing a significant amount of capital to maintain a treaty is a burden most nations do not choose to pay. For most nations, the concept of interactivity offers them a new way to achieve their strategic ends.

In one sense, by multinational forces connecting their unique capabilities, their combined combat power is greater than

what any unilateral force can project. In a future conflict, joint combined operations will be the norm, not the exception. In the new world order, major operations and campaigns will require joint or combined campaign planning to achieve all possible synergism among international military forces. Joint and combined campaign plans will, therefore, be the new way to provide for synergism in achieving national and alliance objectives.

Interactivity offers a new way for countries to achieve a degree of national security or to coalesce for combat operations at less cost (economically and politically) than conventional alliances. The decisive point in this economic feature is that multinational forces are inherently weaker than a simple coalition of two or three powers or unilateral action. For reasons of unity of command, the principle of focusing on a clear objective and the separate agendas that each army brings to a theater of operations makes for a difficult military solution.

Interactivity is also the outright "purchasing" of another nation's military to execute another nation's political objectives. In Desert Storm, the multinational force assembled was paid for, to a large extent, by other nations willing to contribute economically but not militarily.¹³⁶ The vulnerability in this version of economic interactivity is that the utility of a multinational force becomes subject to the whims of those contributing financially. Military victory or no, in this scenario the armed forces become vulnerable to concluding military operations not because of combat operations but because of

economic constraints. Jean de Bloch spoke to this interactivity issue as well.

In consequence of alliances concluded, all plans of activity are founded on the combined operations of allied armies. What will happen to coalition or combined warfare when one or another of the allies is compelled to cease operations through insufficient means for resisting the social influences of war?¹³⁷

Concluding Thoughts

Looking to the twenty-first century and beyond, America will confront a revolution in international affairs as well as respond to urgent calls to rapidly adapt its military strategy and forces. Some military analysts "go so far as to assert that the world is on the threshold of a new era in which military power will no longer be of central importance."¹³⁸ Conceptually, we need a broad guide for strategy and operational doctrine that reflects the essence of modern war. The theory and practice of military art, for now, suffers a notable oversight in its failure to address the economic dimension and its contribution to campaign plan formulation. This is where the military theorist should look.

Economics is a dimension of war that has a great deal to contribute to any enlightened analysis of its cause, purpose and conduct. There are, unfortunately, many who argue that there is little or no relation between the development of a war plan and economic matters. They are, like Clausewitz, thinking of war in too narrow a scope. Furthermore, their views about war lack a sense of perspective which in today's world only exposes their shortsightedness by failing to consider economics as vital to

understanding the essence of war. Economic power is intimately related to the broader issues of strategy formulation. The very heart of campaign planning is to assess the limits imposed on one's freedom of action and those of the enemy. These are where economic decisive points may lie.

This monograph began its look into the military implications of the economic dimension by focusing on military power at the leading edge of the twenty-first century. Military power is becoming increasingly a derivative of economic power. In one dimension of economics, military technology has produced weapons of such destruction by virtue of their accuracy that fewer weapon platforms are required to accomplish the same task. Additionally, the accuracy allows for the striking of a center of gravity without having to sacrifice major forces on the battlefield to reach it. Clearly war is more than the violence of combat. War deals with the wealth and power of nations and the economic capacity of each to wage it. The bare essence of war demands that it be explained with regard to the material/technological environment in which wars are fought.

In the paper's analysis, the intent was to explain to some degree the properties of economic centers of gravity and show five features that could characterize such decisive points at the operational and strategic level. The criteria to measure each economic feature by ends, ways, and means showed their probable effects based on current events and offered a means to measure the war potential of a nation.

The study of Clausewitz reveals no answers to the economic dimension of operational art and strategy. Michael Howard in his short treatise about Clausewitz noted that the Prussian theorist can be criticized "for failing to consider the use of any but military means for achieving his strategic ends."¹³⁹ Even in Clausewitz's time, the economic domain was playing a major role in the course of Napoleon's strategy. The Continental System was not only an economic instrument which dictated Napoleon's military strategy, but perhaps played in his very downfall as a strategic center of gravity.¹⁴⁰ Clearly, the oversight or refusal by Clausewitz to consider the economic dimension of war is unfortunate.¹⁴¹

Still, Clausewitz has helped us to think about war. He has shown it to be a great socio-political activity drawing upon purposeful violence to achieve the political end state.

ENDNOTES

1. Michael Howard, "Military Science in an Age of Peace," (RUSI Quarterly, Vol 119, No.1, March 1974), p. 55.

2. Michael Howard, Clausewitz, (New York, 1983), p. 1. Mr. Howard notes that Clausewitz expressed the modest hope that his On War would not be forgotten after two or three years, and 'might be picked up more than once by those who are interested in the subject'.

3. Karl von Clausewitz, On War, (Princeton, N.J., 1976), p. 89.

4. Ibid.

5. Antoine Henri de Jomini, Summary of the Art of War, Roots of Strategy, Book 2, (Harrisburg, PA, 1987), p. 437.

6. Samuel P. Huntington, The Soldier and the State, (New York, 1957), p. 71. See also Michael I. Handel's book, Clausewitz and Modern Strategy, p. 51. Mr. Handel argues that the difficulty in codifying a theory of war "stems from the extremely complex nature of modern warfare with its seemingly infinite number of variables, ranging from the quantifiable to the intuitive, from the moral to the material."

7. Jomini's focus about war's essence was different yet complementary with Clausewitz. He wanted to devise a system that could, with a degree of certainty, assure the practitioner victory on the battlefield. Major General Edward Atkeson (author of The Final Argument of Kings) notes "a team of writers have described Jomini's work as providing for the study of war something akin to that which Adam Smith did for the study of economics, and insist that his work is a systematic attempt to get at the principles of warfare." Atkeson states further, "Jomini focused on the theater of war and the campaign, and unlike Clausewitz, who urged the destruction of the opposing force, he urged occupation of the enemy's homeland. The task of strategy he <Jomini> saw as that of establishing lines of operation to bring military and geographic factors into harmony." From this basis, Jomini, in deference to Clausewitz, saw the essence of war to be somewhat quantifiable and moreover, subject to economic factors which directly impacted his spatial approach to warfare (pp. 67-68).

Jomini's spatial approach would be wholly accepted, but modified, by the late nineteenth naval theorist, Alfred Thayer Mahan. Mahan's maritime theory borrowed heavily from Jomini and was influenced by the dramatic changes in world affairs brought on by the Industrial Revolution. Modern strategy, to Mahan, would be economically based upon controlling the "lines" of the ocean environment. Interpreting Mahan, Atkeson states, "The theater of conflict was not as important as was the great ocean spaces which connected nations with one another and with key geographic points

around the world" (p. 69).

8. Clayton R. Newell, "The Levels of War", (ARMY, June 1988), pp. 26-29.

9. U.S. Army, Field Manual 100-1, The Army, (Final Draft), (Department of the Army, Washington, DC, January, 1990), pp. iii, 9.

10. Ibid., p. 7. The operational continuum is the intellectual tool used to address a range of operations progressing in three ascending general states of struggle: peacetime competition, conflict, and war.

11. David E. Jeremiah, ADM. USN, Statement before the Committee on Armed Services—United States House of Representatives, (Washington, DC, 12 March 1991), p. 1.

12. U.S. Army, Joint and Combined Environments, (CGSC Publication for P511), (Fort Leavenworth, KS, AY 1989-1990), p. 21. There are six elements of National Power: geographic, National will, economic, political, and military. Also see: National Security Strategy of the United States, (Washington, DC, March 1990), p. 1.

13. William Janes, COL., Notes from presentation on "Formulation of Doctrine", (School of Advanced Military Studies, Ft. Leavenworth, KS, October, 1990).

14. U.S. Army, Joint and Combined Environments, p. 51.

15. Ibid., p. 54.

16. National Security Strategy of the United States, (The White House, March 1990), p. 1.

17. U.S. Army, Joint and Combined Environments, p. 54. Being a component of national strategy, military strategy is usually evolutionary rather than revolutionary and is based on constraints and opportunities presented by world forces and power relationships. This does suggest that U.S. military strategy must continually contend with our slowly evolving national strategy (reflected in policy making) and our shifting military doctrine (reflected in campaign planning) that can change rather dramatically due to technology, economics, and combat lessons learned.

18. Armed Forces Staff College (AFSC) Pub 1, The Joint Staff Officer's Guide 1991, (Norfolk, Virginia, 1991), p. 6-4. To narrow the focus on military strategy, current joint doctrine recognizes its formulation by input from three principals within the U.S. military command:

a. Strategic, or *global* perspective, is done primarily by the JCS/NCA level.

b. Theater, or *regional* perspective, is the purview of combatant commanders (CINCs) who focus on their specific geographic regions as defined in the Unified Command Plan (UCP).

c. Supporting the theater and/or strategic requirements is the *functional* perspective. Commands such as FORSCOM and SPACECOM view their responsibility as not limited by geography and designed to contribute to a supported CINC's concept of operation.

19. Ibid.

20. Ibid.

21. Note that in figure 4, neither curve touches the bottom of the chart. Military factors and the elements of national strategy are always of some consequence. Edward B. Atkeson, Major General USA, Ret., The Final Argument of Kings (p. 62), notes, "political leaders and military leaders are inseparable partners in the service of the state and are highly interdependent."

22. Edward B. Atkeson, Major General USA, Ret., The Final Argument of Kings, (Fairfax, Virginia, 1988), p. 63. The author owes General Atkeson credit for the latter's insight into military strategy formulation and its dimensions given today's realities. His Figure 1 on page 63 of his book was the inspiration for the author's figure 3.

23. Huba Wass de Czege, "The U.S. Army's Doctrinal Reforms", (Fort Leavenworth, Kansas, 3 November 1982), p. 1.

24. James R. Schlesinger, The Political Economy of National Security, (New York, 1960), p. 1.

25. Michael I. Handel, Clausewitz and Modern Strategy, (Totowa, New Jersey, 1986), p. 56.

26. AFSC Pub 1, The Joint Staff Officer's Guide 1991, p. 2-2. The pivotal responsibility for determining national strategy rests with the National Security Council. The NSC's purpose is to ensure that national interests and objectives are at once set to strategic direction and resourced accordingly. The NSC was established by the National Security Act of 1947 as the principal forum to consider national security issues that require Presidential decision. Its membership now includes only four statutory members: the President, the Vice President, the Secretary of State, and the Secretary of Defense. The Chairman of the Joint Chiefs of Staff (CJCS) and the Director of Central Intelligence serve as statutory members to the NSC. The Assistant to the President for National Security Affairs (the National Security Adviser) is responsible for the day-to-day operation of the council and interagency coordination.

27. Ibid., pp. 6-5. The CJCS outlines the nation's military strategy in the biennial Joint Strategic Capabilities Plan (JSCP), which assigns preparation of specific contingency plans to the unified and specified combatant commanders.

28. Ibid., p. 6-4.

29. Ibid. A campaign plan is a plan for a series of related military operations aimed to accomplish a common objective, normally within a given time and space (Joint Pub 1-02).

30. Ibid., p. 6-10.

31. Huntington, The Soldier and the State, p. 71. Military science concerns the implementation of state policy by armed force.

32. Jean de Bloch, The Future of War, (CSI reprint, Ft. Leavenworth, KS, 1989), p. LXXIII.

33. Conflict can be political and/or economic, not just military.

34. James Schneider, Foundations of Military Theory, (Fort Leavenworth, Kansas, 26 June 1990), p. 1-2-1.

35. Schlesinger, The Political Economy of National Security, p. 61.

36. Ibid., p. 18. Schlesinger also noted the comment made by a former Chief of Naval Operations, Admiral Robert B. Carney, who defined strategy as *a plan of action best to employ resources towards the achievement of aims*.

37. Ibid., p. 255.

38. Ibid., p. 58.

39. Paul Kennedy, The Rise and Fall of the Great Powers: Economic change and Military Conflict from 1500 to 2000, (New York, 1987), p. 76.

40. Coalition wars usually become protracted affairs because when one belligerent runs low on resources it will look to a more powerful ally for loans and reinforcements to keep itself in the fight.

41. No one, Clausewitz wrote, starts a war—or rather no one in possession of their full senses ought to do so—without first being clear in his mind as to what he intends to achieve by going to war and how he intends to conduct and resource it. It is this latter point that Germany never overcame in both world wars.

WWI- (The following excerpt is from Paul Seabury and Angelo Codevilla, War—Ends and Means, pp.51-52.) Scholars generally

agree that WWI was caused by two economically driven processes: First, was the polarization of Europe into two opposing camps: The Triple Alliance (Germany, Austria-Hungary, & Italy) and the Triple Entente (England, Russia, & France)... Each accused the other of being the harbinger of crisis. The other reason postulated was supposedly a dizzying arms race. For both offensive and defensive reasons, the two armed camps allegedly kept stock piling armaments and expanding their armed forces for no other reason than for bringing on war.

WWII- (The following excerpt is from Paul Kennedy, The Rise and Fall of the Great Powers, p. 340.) The Molotov-Ribbentrop Pact (August 23, 1939) not only enhanced Germany's strategic position, but negated any chance of an Anglo-Franco maritime blockade from being effective. The political agreement between Berlin and Moscow also led to commercial arrangements, so that an increasing flow of raw materials sent from Russia steadily obviated any effects which the blockade might have on the German economy.

In the first year (1939) of WWII, stocks of oil and other raw materials were still desperately low in Germany, but ersatz production, Swedish iron ore, and growing supplies from Russia helped to bridge the logistics gap. Finally, there were no encumbering allies for Germany to prop up, like Austria and Hungary in WWI. Had Italy joined in the conflict in 1939, its own economic deficiencies might have posed an excessive strain upon the German level of stocks, and arguably, dislocated the chances for the German westward strike in 1940. To be sure, Italy's participation would have complicated the Anglo-French position in the Mediterranean, but not by much—and Rome's neutrality made it a useful conduit for German trade—which is why many planners in Berlin hoped Mussolini would remain on the sidelines.

42. Paul Seabury and Angelo Codevilla, War: Ends and Means, (New York, 1989), p. 53. Messrs. Seabury and Codevilla add the following: The lack of direct action toward Germany's rearmament was one of economic placation; i.e., the 1930's arms race. Western liberals tried to show Hitler that he would not need all the weapons he was acquiring because they themselves would not arm. But while reciprocal military buildup might have sobered Hitler, the allies restraint made Hitler's buildup more cost effective at the margin (at their expense for not rearming).

43. Schlesinger, The Political Economy of National Security, p. 62.

44. Ibid.

45. The blitzkrieg partly explains the Third Reich's failure to mobilize the German economy. German confidence in swift, total victory meant that German troops in Operation Barbarossa (May-Dec 1941) were logistically ill equipped. As Albert Speer later admitted in his memoirs, German total mobilization was not seriously attempted until 1943. (Extract from Paul Seabury and

Angelo Codevilla, War-Ends and Means, (New York, 1989), p. 71.

46. Schlesinger, p. 21.

47. Schlesinger offers this impression of the dilemma between guns and butter (The Political Economy of National Security, p. 54.): We may beat our plowshares into swords, but we find it difficult to achieve the same results with cosmetics, textiles, etc. Armament production means heavy industry, so many states are unable to make the choice between guns or butter; only industrial states possess that choice. As a caveat, many industrial states, such as the US and Japan are continuing to move away from a society of heavy industry one of service sectors and information processing.

48. Ibid., p. 60.

49. Seabury and Codevilla, War: Ends and Means, p. 69.

50. Ibid.

51. Ibid., p. 71.

52. Matthew Cooper, The German Army, 1933-1945: Its Political and Military Failure, (New York, 1978), pp. 275-279.

53. Ibid., pp. 452-453.

54. Economic capacity is a quantitative measure of the ability to generate resources, purchased or produced. When resources serve military ends, economic capacity provides a nation with the means to achieve its war aims or strategic goals. Examining economic capacity permits one to ascertain an index of a nation's capability to project its elements of national power, particularly military power.

55. Graham H. Turbiville, "Sustaining Theater Strategic Operations", (Fort Leavenworth, Kansas, April, 1989), p. 8. Dr. Turbiville cites Soviet strategic operations being supported by a strategic rear designed to provide continuous support. The Soviet logistic support system in peacetime is postured to facilitate its rapid move to a wartime footing within 90 days. Key to Soviet theater sustainability are the Soviet central rear services which have no precise US counterpart. The central rear services comprise virtually every type of logistic unit and resource. They handle the stockages of all classes of supply that US theater support forces would, but also control a portion of State Reserves which are the mobilized industries making war materiel. Vast resources from the national economy are designated for mobilization and incorporation into the central rear services.

56. Handel, Clausewitz and Modern Strategy, p. 59.

57. Michael Howard and Michael Handel both attempted to explain Clausewitz's oversight of the economic dimension. Handel (Clausewitz and Modern Strategy, pp. 52-53 & 81) argues that Clausewitz, by strictly adhering to the conduct of war derived from the campaigns of Frederick the Great and Napoleon, missed completely the impact that the Industrial Revolution would bring to technology and the economics of waging war. He noted too that if strategy in Clausewitz's time was the art of using force on the battlefield to achieve political ends, by the time of his death, the elements of "force" would begin to include the economic imperatives of mobilization, domestic support, technology, and communications.

Professor Howard (Clausewitz, p.3.) could claim equal ignorance on Clausewitz's behalf for overlooking the economic domain. Howard states, "it is curious that a Prussian specialist on military questions, whose country had been established as a major military power as much through skill in economic matters as by military victories, should virtually ignore a dimension of military affairs which had occupied the forefront of every Prussian soldier, statesman and bourgeois since the days of Frederick William I." Howard could not understand how Clausewitz, who intensively studied the nature of war as witnessed during the Napoleonic era, failed to make any mention of the part economics played in Napoleon's strategy. Napoleon's Continental System was an "attempt to use economic as well as military instruments to consolidate and extend this conquests." Yet this strategy, perhaps the very reason for Napoleon's downfall was totally missed by Clausewitz. In Howard's view, Clausewitz's ignorance "of the economic dimension of war was deliberate and tragic."

58. Clausewitz, On War, p. 89.

59. Ibid., p. 374.

60. Schlesinger, The Political Economy of National Security, p.

50. Schlesinger adds the following: In relation to national power, economic capacity may be interpreted in two ways: as a doctrine and as an element of strength. In the latter role, the concept has a distinct but limited usefulness in gauging the alignment of power between nations (see definition in Endnote No. 39). As a doctrine it appraises the economic potential for war and the economic mobilization base.

61. For a modern day perspective on the economic origins of war see Kennedy, The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000, pp. 46-58. Certainly Bloch's, The Future of War is a primary source of information for reviewing the economic dimension in a historical context.

62. Gabriel Schoenfeld, "The Loser of the Gulf War Is—The Soviet Military," (The Wall Street Journal, New York, 19 March 1991), p. A22.
63. Ibid.
64. Handel, Clausewitz and Modern Strategy, p. 79.
65. The realities of war often find planners and CINCs dealing with end states not clearly defined. This may reflect political aims not crystallized or a fluid situation (crisis) in which end states have yet to be formalized.
66. Handel, Clausewitz and Modern Strategy, p. 81.
67. Sun Tzu wrote that "to subdue the enemy without fighting is the acme of skill." Could he have been thinking of means other than military? (Extract from: Samuel B. Griffith, Sun Tzu—The Art of War, (New York, 1971) p. 77.
68. Handel, Clausewitz and Modern Strategy, p. 81.
69. Clausewitz, On War, p. 177.
70. Ibid. p. 90.
71. Ibid., pp. 90-91. Clausewitz stated unequivocally that "the fighting forces must be destroyed". The destruction of the enemy's forces "in the abstract, is the ultimate means of accomplishing the war's political purpose."
72. The definition of economic capacity is found in endnote 50. Economic potential is not a quantifiable measure of a nation's ability to transfer its resources from domestic products to military materiel. It can be a yardstick for the recuperative capacity of a society to respond after an attack or a standard for the magnitude of industrial mobilization.
73. Schlesinger, The Economics of National Security, p. 52.
74. National Security of the United States, p. 1.
75. Ibid.
76. Clausewitz, On War, p. 94.
77. Ibid., p. 358.
78. "United States Military Strategy: The Role of American Armed Forces in a Changing World Order", (JCS draft paper, Washington, DC, 6 March 1991), p. 3.

79. Alvin Toffler. "Powershift" (Star Magazine, The Kansas City Star, 20 January 1991) p. 8.

80. Ibid., pp. 9-11. This list of five economic centers of gravity had its genesis from Toffler's list of six distinct features of an electronic infrastructure. They share commonality with this monograph's list in name only.

81. Robert B. Killebrew, "Force Projection in Short Wars", (Military Review, Fort Leavenworth, Kansas, March 1991), p. 36.

82. Author's discussion with Dr. Graham H. Turbiville, Jr., Soviet Army Studies Office, U.S. Army Combined Arms Center, Fort Leavenworth, Kansas on 9 April 1991. Dr Turbiville observed these relevant comments concerning the USSR struggle to maintain their *armament in depth*: The collapse of communism has played a large role in forcing Soviet leaders to reevaluate their economic policies. The legacy of seventy years of state planning and one-party rule has wrecked their economy to where internal revolt is now evident. So many years of shorting consumer goods for military needs have made Soviet citizens impatient for better living conditions. The collapse of an economy designed for rapid wartime mobilization in the years ahead will leave the Soviets with a "Third World" military by the end of the decade.

83. Klaus Knorr, "Military Strength: Economic and Non-Economic Bases", (Lawrence, Kansas, 1977), p. 186.

84. Toffler, "Powershift", p. 10.

85. Alan Reynolds, "Borrowing for Defense—the Prudent Strategy", (The Wall Street Journal, February 14, 1991), p. A12.

86. Ibid.

87. "United States Military Strategy: The Role of American Armed Forces in a Changing World Order", (JCS draft paper, Washington, DC, 6 March 1991). pp. 17-18.

88. Carl E. Vuono, "Desert Storm and the Future of Conventional Forces", (Foreign Affairs, Spring 1991), p. 59.

89. Ibid., p. 32.

90. Ibid.

91. Ibid.

92. Ibid., p. 19.

93. John G. Roos, "NATO Shifts Toward Crisis Management: Europeans Consider Regional Alliance," (Armed Forces Journal International, April 1991), p. 34.

94. Kennedy, The Rise and Fall of the Great Powers, p.77.

95. Ibid., p. 85.

96. Schlesinger, The Political Economy of National Security, p. 64.

97. Reynolds, "Borrowing for Defense—the Prudent Strategy", p. A12.

98. National Security Strategy of the United States, p. 13.

99. "United States Military Strategy: The Role of American Armed Forces in a Changing World Order", p. 5. "The United States confronts the new international environment during a period of US budget and trade deficits. The combination of a reduced Soviet threat, together with U.S. budget deficits, will produce powerful pressures to continue reducing US defense spending. These pressures will be reinforced by urgent domestic needs which compete for budget dollars. Consequently, the US national security strategy will have to emphasize the political, diplomatic and economic tools of national power. The military component of this strategy places a special premium on efficiency, without compromising necessary military capabilities. Designing and maintaining this military strategy requires a realistic assessment of the enduring threats and potential challenges to US security."

100. Ibid., p. 65.

101. Ibid., p. 72.

102. Ibid., p. 67.

103. Ibid. Schlesinger states: Overall economic capacity is an abstraction which avoids specification of the time, space, and purpose of any encounter.

In any given situation, these characteristics must be pinned down: at what point in time does the conflict occur, which nations are engaged and which are neutral, and where is the fighting to take place. In absolute war, these specific characteristics are of importance; but in limited warfare, they completely overshadow the general indicators of economic strength.

104. Clausewitz, On War, p. 90.

105. Handel, Clausewitz and Modern Strategy, p. 56.

106. Ibid.

107. Ibid., p. 69. Schlesinger draws upon the following quote to illustrate this point:

The ability to wage war cannot be measured in purely quantitative terms. . . A nation can be adequately prepared to wage one kind of war under one set of circumstances and inadequately prepared to wage another kind of war under a different set of circumstances. The utility of a nation's military power. . . will depend. . . upon its suitability for countering the specific kinds of military threats impinging upon the nation's interests.

108. The essence of strategy, not operational art, is the identification of the enemy's center of gravity. Operational art is two-fold: 1) correctly identifying decisive points which make the center of gravity vulnerable, and 2) maintaining a single-minded focus on the sequence of actions to expose and destroy it.

109. L. Edgar Prina, "Two if by Sea...Are We Ready", p. 14. The article cites the following comment by General Carl E. Vuono: "It is no secret that our ability to project substantial land combat forces is decidedly inadequate—we simply do not have sufficient airlift or sealift to support our requirements under the quite conceivable contingencies that realistically require US forces."

110. Ibid., p. 20.

111. L. Edgar Prina, "Two if by Sea...Are We Ready?", (ARMY, December 1990), p. 14.

112. Ibid., pp. 14.

113. Ibid., p. 18.

114. Ibid., p. 16.

115. Edward B. Atkeson, "Iraq's Arsenal: Tool of Ambition", (ARMY, March 1991), p. 23.

116. Ibid.

117. Clausewitz, On War, p. 204. The author has taken the liberty to interpret Clausewitz' use of the word strategy as course of action at the operational level.

118. Christopher Donnelly, Red Banner, (Alexandria, Virginia, 1988), p. 84. Donnelly points out that what proved of immense importance in 1941, was sheer volume of men and material. The Soviet Army has not forgotten this lesson of war.

119. Ibid., p. 74. Starting with the first of a series of "Five-Year Plans" in 1929, enormous factories were created as part of an Industrial base to produce heavy weapons on an unprecedented scale. Most civilian production systems were, as now, capable of very rapid transformation to military production.

120. Schoenfeld, "The Loser of the Gulf War Is—The Soviet Military," p. A22.

121. Ibid.

122. Ibid.

123. Carl E. Vuono, "Desert Storm and the Future of Conventional Forces", p. 63.

124. Ibid.

125. Ibid.

126. Donnelly, Red Banner, p. 105. Donnelly notes that the Soviets accept their inferiority in advanced technological research.

127. Schoenfeld, "The Loser Is. . .", p. A22.

128. Donnelly, Red Banner, p. 105. Donnelly makes the following point: The relative strength of the warring sides' economies and technologies is the most important factor in war, but not the only one. The Soviets see an advantage in their capability to mobilize (convertibility). To the Soviets, it is said to be the function of the political leadership and military command of a nation to realize a nation's economic potential. Therefore, it is not the nation or coalition with the strongest economy which will win a conflict, but the nation or coalition which can best organize its potential for waging war. Soviet economic potential is predicated on two principles: 1) subordinating the requirements of civilian efficiency (consumerism) to the demands of military mobilization in many area of the Soviet economy; and 2) maintaining a tight control of civilian society so as to maximize the social potential and moral-political of the state. Economic and defense problems are treated as one.

129. Ibid., p. 121. Donnelly notes: For the Soviets to commit more resources to developing current equipment at the expense of the whole economy does not make sense. It appears that even the military can see the value of reducing investment in current force development in favor of basic research so that the USSR can prevent the West from rushing ahead and achieving a "technological breakthrough".

130. "United States Military Strategy: The Role of American Armed Forces in a Changing World Order", pp. 17-18.

131. Ibid.

132. Walter S. Mossberg, Frederick Kempe, and Urban C. Lehner, "Footing the Bill: Americans Ask Why Germany, Japan Bear So Little of Gulf Cost", (The Wall Street Journal, New York, January 11, 1991), pp. A1 & A7.

133. David E. Jeremiah, "Statement before the House Armed Services Committee", p. 2. Admiral Jeremiah quoted the following from the 1991 Joint Military Net Assessment:

"US military strategy is founded on the premise that America will continue to serve a unique leadership responsibility for preserving global peace and stability. It is derived from US defense strategy, which formerly focused primarily on containing Soviet aggression on a global scale. This defense strategy is now shifting to added focus on forward presence, crises response, and reconstitution as its major themes, while maintaining our long-term reliance on nuclear deterrence. Because of changes in defense strategy, priorities and emphasis among the various principles that describe the national military strategy have begun to shift significantly. This shift represents an essential adaptation to the new realities already described—a receding Soviet threat and a declining defense budget."

134. National Security Strategy of the United States, p. 2. National security and economic strength are indivisible. America seeks to ensure access to foreign markets, energy, mineral resources, the oceans, and space.

135. The identity crisis for NATO is what its primary role should be in the 21st century. It's military role was clear until 1990. Today that role is transforming to a more political one, and perhaps, an economic one.

136. Mossberg, Kempe, & Lehner, "Americans Ask Why Germany, Japan Bear So Little of Gulf Cost", p. A1.

137. Bloch, The Future of War, p. LXXiii.

138. Vuono, "Desert Storm and the Future of Conventional Forces," p. 49.

139. Howard, Clausewitz, p. 40.

140. Ibid., p. 3.

141. Ibid. Michael Howard has much to add about Clausewitz' deliberate rejection to investigate the economic dimension of war: "It is more curious that a Prussian specialist on military

questions whose country had been established as a major military power as much through skill in economic matters as by military victories, should virtually ignore a dimension of military affairs which had occupied the forefront of the mind of every Prussian soldier, statesman and bourgeois since the days of Frederick William I.

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